UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

SENT VIA EMAIL

October 5, 2010

Mr. Steve Quigley, P.E.
Principal-in-Charge/Project Manager
Conestoga-Rovers & Associates Ltd. (CRA)
651 Colby Drive
Waterloo, Ontario N2V1C2

RE: Operable Unit 1 (OU1) Feasibiltiy Study for the
South Dayton Dump and Landfill (SDDL) Site, Moraine, Ohio

Dear Mr. Quigley:

Thank you for your September 17, 2010, letter concerning the OU1 FS for the SDDL Site in Moraine, Ohio.

It is encouraging to note that we agree on some of the issues that were raised in your previous letters. As you noted, we agree that CRA may defer the southern portion of the Site to OU2, and conduct a conventional (i.e., non-streamlined) Remedial Investigation (RI) and Feasibility Study (FS) for this area. This is consistent with the agreement in the 2006 Statement of Work (SOW). Proceeding with the OU1 work will address a major portion of the threat posed by the landfill source area, and still allow CRA to investigate options for the southern parcels.

We are also pleased to see that we are in agreement that the MatCon capping alternative can be accommodated in the OU1 FS and that the sloping requirements can be addressed in the Remedial Design, providing alternatives that will accommodate the operating businesses on the Site.

However, as we explained during our August 18, 2010, meeting and in our September 10, 2010, letter, we cannot agree to CRA's other proposals and conditions for submitting the revised OU1 FS. Additional details concerning our response to CRA's

proposals and conditions can be found in our July 7, 2010, OU1 FS comments, our September 10, 2010, letter and Attachment 1 to this letter.

In our September 10, 2010, letter, we granted CRA a three-week extension to submit the revised OU1 FS to EPA. The revised OU1 FS, addressing our July 7, 2010, comments, was due on September 24, 2010. As of this letter, EPA has not received the revised OU1 FS.

The revised OU1 FS is now 10 days late. We are now in the unfortunate position of having to consider whether you are out of compliance with the Administrative Settlement Agreement and Order on Consent (ASAOC), and whether EPA needs to start evaluating our other options for completing the OU1 FS. However, if the revised OU1 FS is submitted to us by COB, October 22, 2010, we would look upon this favorably in our assessment.

In addition, based on CRA's 2008-2010 investigations, and, in our OU1 FS comments, we indicated that a vapor intrusion investigation needs to be conducted to determine if there is an immediate need to vent buildings currently on top of the landfill, or to vent off-Site residences and businesses that may be located over the shallow VOC groundwater plume. EPA has not received a response to this request, other than an indication that additional soil gas samples will be collected near GP-20, and that a shallow off-Site groundwater investigation would be conducted as part of OU2.

EPA believes, however, that this is an extremely urgent matter that cannot wait, since there are current businesses and residences on and adjacent to the Site who may be at risk. Therefore, consistent with Section IX, Work to Be Performed, Paragraph 37(c) of the ASAOC, we respectfully request that CRA provide us with a work plan (and field sampling plan and quality assurance project plan addenda) for a vapor intrusion investigation at all on-Site buildings, and adjacent residences and businesses that may be over the shallow VOC groundwater plume, within 30 days of receipt of this letter.

The planning documents should be developed following EPA's data quality objectives process, and relevant vapor intrusion guidance. Consistent with Paragraph 37(d), we also request that you confirm your willingness to perform this additional Work, in writing, within seven days of your receipt of this request.

EPA does not believe that the vapor intrusion study should delay submission of the revised OU1 FS. EPA believes it has the flexibility within the Superfund process to consider the results of the study, as appropriate, as the remedy selection process proceeds for OU1. In addition, EPA has the ability to modify a selected remedy, should a modification be warranted, through a Record of Decision amendment or an Explanation of Significant Difference, as appropriate.

If you have any questions or would like to discuss these issues or discuss the SDDL Site further, please contact me at 312-886-1843 or via email at

cibulskis.karen@epa.gov. Legal questions should be directed to EPA attorney Tom Nash, at 312-886-0552 or via email at nash.thomas@epa.gov.

Sincerely,

Karen Cibulskis

Karen Cibulskis
Remedial Project Manager

cc: Tim Prendiville, SR-6J
Tom Nash, C-14J
Luanne Vanderpool, SRF-5J
Mark Allen, OEPA
Matt Justice, OEPA
Brett Fishwild, CH2M
Ken Brown, ITW
Adam Loney, CRA

ATTACHMENT 1 TO EPA's OCTOBER 4, 2010 LETTER
Additional Details and Response to CRA's Conditions and Proposals

Issue 1: *CRA believes the ASAOC does not allow EPA to require a presumptive remedy approach on shallow groundwater and landfill gas; only for the waste materials in the central portion of the Site.*

EPA Response to Issue 1: Page 1 of the SOW to the ASAOC does say, "...the Respondents shall use a presumptive remedy approach consistent with U.S. EPA guidance...to address the potential risk from direct contact with the landfill contents in the central portion of the Site." However, further flexibility in the application of the presumptive remedy approach is made available in Task 6 of the SOW:

> *Consistent with the Presumptive Remedy Guidance, remedial alternatives to contain and address the direct contact risk from the landfill materials in the Presumptive Remedy Area,* ***and to address other Site areas and/or media in which the risk assessment (streamlined or conventional) indicates that remedial action is clearly warranted and that a presumptive remedy approach is appropriate (emphasis added)*** *shall be described in the Alternatives Screening Technical Memorandum and will be given detailed analysis in the FS Report.*

CRA was provided with ample opportunity throughout this process, to complete a conventional RI/FS on the landfill material and other media, including landfill gas and groundwater. However, CRA was unable to provide EPA with work plans that would meet the fundamental objectives of a conventional RI/FS. We made it clear in our comments on the various letter work plans that the data gathered would not be suitable to complete a conventional RI or FS, but could be used in a streamlined RI/FS.

Nonetheless, CRA wished to proceed with data gathering for your own purposes and chose not address EPA's concerns. EPA was subsequently able to use that data to develop a streamlined risk assessment. The data CRA gathered and the streamlined risk assessments developed from that data support a presumptive remedy approach to the risks posed by landfill gas and shallow groundwater, as well as those risks arising from direct contact with landfill contents.

We believe it is in the best interest to use the information at hand, via the presumptive remedy approach, rather than wait six months to a year to complete studies that will inevitably confirm what we already know; that shallow groundwater and landfill gas pose an unacceptable risk.

Issue 2: *CRA disagrees with EPA's request to evaluate at least two active remedial alternatives (i.e., engineered technologies), in addition to the no-action alternative and any other alternatives CRA would like to evaluate in the OU1 FS, to prevent shallow groundwater contaminants, at a minimum, from migrating beyond the central-southeast boundary of the Site.*

EPA Response to Issue 2: The 2006 SOW requires a conventional RI/FS, risk assessment and ecological assessment consistent with the requirements of the SOW for all Site areas and/or media not addressed by the presumptive remedy approach agreed to in the SOW; and in all Site areas and/or media where the Respondents have not clearly indicated there is a basis for remedial action and that a presumptive remedy approach is appropriate.

CRA had several opportunities to conduct a more thorough investigation to characterize the nature and extent of the groundwater contamination at the Site boundary more fully during the OU1 RI/FS. This work could have included additional vertical aquifer sampling (VAS) work and monitoring well installations. However, CRA did not conduct this work.

CRA's limited investigations to characterize the landfill material, groundwater and soil gas at the Site (given the size and the complexity of the Site) is, however, consistent with EPA guidance for presumptive remedy landfill sites. As such, EPA approved CRA's work plans for these investigations, since any further refinement of the exact extent of contamination to be remediated could be conducted during remedial design.

As we explained in our OU1 FS comments, CRA's 2008-2010 data cannot be used to support a quantitative human health and ecological risk assessment for the Site. However, consistent with EPA guidance, the data can be used to support a streamlined risk assessment for the Site. We provided CRA with a streamlined risk assessment for each set of landfill parcels grouped by CRA in our July 7, 2010, OU1 FS comments. Our streamlined risk assessments show, that, at a minimum, the OU1 FS should evaluate remedial alternatives to contain shallow groundwater at the central-southeast boundary of the Site.

We believe that our request to evaluate these alternatives for shallow groundwater is consistent with Task 6 of the SOW, *Development and Screening of Alternatives.* This task requires CRA to develop and screen:

> *...remedial alternatives to contain and address the direct contact risk from the landfill materials in the Presumptive Remedy Area and to address other Site areas and/or media in which the risk assessment (streamlined or conventional) indicates that remedial action is clearly warranted and that a Presumptive Remedy approach is appropriate.*

Based on CRA's 2008-2010 investigations and our streamlined risk assessment, we believe it is appropriate for the OU1 FS to evaluate remedial alternatives to contain shallow groundwater, through chemical, physical or biological processes, at the general southward downgradient boundary of the Site, from approximately:

- VAS-15 (trichloroethene or TCE 18 ug/L) south along Dryden Road to MW-210 (TCE 260 ug/L in groundwater in MW-210 and 1,200 ug/m^3 in soil gas at GP-12; and 3.2 to 12 ug/L in off-Site VAS-24, VAS-25 and MW-213-VAS); and,

- West of MW-210 to approximately MW-203 (vinyl chloride 1.6 to 3.2 ug/L with low TCE in MW-203; and TCE 2,000 ug/m^3 in soil gas in GP-9 south of MW-203, 200 feet from a residence with a basement).

While CRA did some sampling of the landfill material, CRA did not conduct a complete source area investigation at the Site. However, the limited sampling showed TCE and/or other hazardous chlorinated solvents were present in landfill materials in 16 out of 28 test pit/test trench sampling locations at the Site, including: TP-2, TP-3, TP-4, TP-5, TP-6, TT-5, TT-7, TT-8, TT-9, TT-10, TT-11, TT-12, TT-20, TT-21, TT-23 and TT-23.

CRA did not determine the full nature and extent of this contamination; however, at nine locations, these hazardous substances were detected at concentrations above non-conservative soil criteria for groundwater protection based on maximum contaminant levels (MCLs), a cancer risk of 10^{-4} or a noncancer hazard index (HI)=1, and a dilution attenuation factor of 10: TP-3, TT-7, TT-8, TT-9, TT-19, TT-20, TT-21, TT-22 and TT-23 (see Table 1).

TCE and/or other chlorinated solvents were also detected in a composite sample from five drums removed from an excavation at Valley Asphalt (TCE 64,000 ug/Kg); at high levels in shallow groundwater samples collected from VAS-9 (TCE 5,100 ug/L; cis-1,2-DCE 3,900 ug/L and vinyl chloride 760 ug/L); and in soil gas samples collected from 20 out of 21 gas probes at the Site (all soil gas probes except GP-7). These data, in addition to the groundwater data, indicate additional areas where TCE and/or other chlorinated solvents are present.

Consistent with EPA policy, groundwater that is a current or potential source of drinking water that exceeds risk-based standards (e.g., MCLs) or poses an unacceptable risk generally warrants remedial action under the Comprehensive Environmental Response, Compensation and Liability Act [see Office of Solid Waste and Emergency Response (OSWER) Directive 9283.1-33, *Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration*, June 26, 2009]. The landfill materials at the SDDL Site extend into the Great Miami Valley Sole Source Aquifer, and the landfill is located within a secondary wellhead protection area. Well records also indicate there are two

residential wells and 5 commercial/industrial wells located within 500 to 1,500 feet of the general downgradient direction of the Site.

The National Contingency Plan establishes EPA's expectations for groundwater contamination. They are to contain contaminated groundwater beneath a waste management area when waste is left in place (e.g., at a landfill) to prevent groundwater contaminants from migrating further; and to return usable groundwater outside a waste management area to its beneficial use (e.g., as a current or potential water supply), wherever practicable, within a reasonable time frame for the site.

We agree that additional characterization would be needed during remedial design, or could be conducted sooner, to determine the actual configuration for a groundwater containment system; and to collect data to use in developing a long-term monitoring plan for the Site, especially in areas at the OU1 Site boundary outside a groundwater containment area. We will also consider this data, as appropriate, as support for a change in our OU1 proposed plan or record of decision (ROD), or as the basis of a ROD amendment or an explanation of significant difference (ESD) at the Site.

As explained in our OU1 FS comments, we cannot approve CRA's MW-210 work plan for a groundwater investigation at the Site boundary. The membrane interface probe (MIP) CRA is proposing to use for this work is more useful for a non-aqueous phase or source area investigation. This is because the lowest detection limit the MIP can attain for chlorinated solvents is 200 ug/L. This detection limit is 40 times greater than the MCL (i.e., the action level) for TCE of 5 ug/L, and 100 times greater than the MCL and 1 x 10-4 risk based concentration for vinyl chloride, which is 2 ug/L.

Unfortunately, the MIP's detection of limit of 200 ug/L for chlorinated solvents will not meet the data quality objectives a Site boundary investigation will require. Also, the MIP will not detect arsenic or lead, which are present at high levels in landfill materials and unfiltered groundwater samples at the Site, but have not been fully characterized along the Site boundary; or semivolatile organic compounds and polychlorinated biphenyls, which are also present in landfill materials and on-Site groundwater, including groundwater at the Site boundary.

We are willing to work with CRA as expeditiously as possible on more appropriate sampling methods and procedures for a Site boundary investigation, consistent with the data quality objectives this work will require. This work, however, should not delay the OU1 FS.

Consistent with EPA guidance, we still request that the OU1 FS evaluate at least two active remedial alternatives to contain shallow groundwater in the central-southeast area of the Site (approximately 1,300 linear feet). There is, however, significant flexibility in the potential remedial alternatives CRA could evaluate to contain the

shallow groundwater. These include a variety of chemical, physical and biological technologies. Again, we are only requesting that CRA evaluate these alternatives in the FS. EPA will not select a final remedy for shallow OU1 groundwater until all shallow groundwater alternatives, including the no-action alternative, are evaluated in conjunction with EPA's nine evaluation criteria, in the OU1 ROD.

Issue 3: *CRA disagrees with EPA's request to evaluate an active landfill gas (LFG) and soil vapor system for the Site in the OU1 FS.*

EPA Response to Issue 3: The SOW requires a conventional RI/FS, risk assessment and ecological assessment consistent with the requirements of the SOW for all Site areas and/or media not addressed by the presumptive remedy approach agreed to in the SOW; and in all Site areas and/or media where the Respondents have not clearly indicated there is a basis for remedial action and that a presumptive remedy approach is appropriate.

CRA had several opportunities to conduct a more thorough investigation to more fully characterize the nature and extent of LFG and soil vapor contamination at the Site during the OU1 RI/FS. This work could have included indoor air and subslab soil gas sampling in all on-Site structures, at multiple times of the year to determine any seasonal effects, for quantitative risk assessment purposes. However, CRA did not conduct this work.

CRA's limited investigations to characterize LFG and soil vapor, and to characterize landfill materials and groundwater as a potential source of LFG and soil vapor (given the size and the complexity of the Site), is, however, consistent with EPA guidance for presumptive remedy landfill sites. As such, we approved CRA's work plans for the 2008-2010 investigations, since any further refinement of the exact extent of LFG and soil gas contamination to be remediated could be conducted during the remedial design. Any capping alternative, however, will also have to account for increased risks to workers in on-Site buildings once the landfill is capped, since the low permeability cover material will trap volatilized contaminants and cause chemical concentrations in soil gas and indoor air to increase.

As we explained in our OU1 FS comments, CRA's risk assessment for on-Site worker exposure to soil gas is not supportable because CRA conducted a limited soil gas investigation, then averaged chemical concentrations from different exposure areas at the Site to calculate one, Site-wide risk. This is not appropriate, because, for example, workers at Valley Asphalt are only exposed to contaminants at Valley Asphalt. Lesser contaminant concentrations, near the Quarry Pond, for instance, would not be relevant.

There is also additional uncertainty, because, at about half of the sampling locations, CRA did not screen the soil gas probes within three to five feet of the surface in areas

where landfill materials were present consistent with the approved work plan. As a result, the actual chemical concentration of soil gas contaminants in landfill materials closer to receptors at these locations is uncertain, and could be higher as the soil gas passes up through additional waste material.

Consistent with EPA guidance, CRA's 2008-2010 data can be used to support a streamlined risk assessment for the Site. The streamlined risk assessments we provided to CRA in our July 7, 2010, OU1 FS comments show there are high levels of methane in soil gas adjacent to some of the on-Site buildings:

- 26 percent by volume adjacent to a building in GP-18 (above the upper explosive limit or UEL of 15 percent);
- As high as 68, 86 and 96 percent of the lower explosive limit (LEL) adjacent to three other buildings in GP-13, GP-15 and GP-16 (the LEL is 5 percent); and
- 34 percent of the LEL adjacent to another building in GP-17.

Methane is also present above the UEL at two other on-Site locations (as high as 20 and 28 percent methane in GP-1 and GP-2), and is above the LEL at another location (as high as 7.9 percent methane GP-4/GP-21).

Our screening risk assessment shows that soil gas adjacent to three of these on-Site buildings, and 50 feet from a fourth building, also contains high levels of volatile organic compounds above 1×10^{-4} and/or HI=1 industrial risk-based levels. These risk-based levels were calculated using EPA's Regional Screening Levels for industrial indoor air, adjusted by a dilution attenuation factor of 10, consistent with the method used in the OSWER Vapor Intrusion Guidance. Our screening risk assessment indicates the soil gas concentrations adjacent to these these buildings correspond to the following industrial risk levels:

GP-18: 14,000 ug/m^3 benzene (cancer risk = 8×10^{-4}; HI=10); 980 ug/m^3 napthalene (cancer risk = 2.7×10^{-4}; HI = 7); and 4,800 ug/m^3 vinyl chloride (cancer risk = 1.7×10^{-4}; HI=1.1).

GP-20: 16,000 to 56,000 ug/m^3 TCE (cancer risk 2.6×10^{-4} to 9 x 10-4)

GP-15: 14,000 ug/m^3 vinyl chloride (cancer risk = 5×10^{-4}; HI=3)

GP-13: 6,8000 ug/m^3 vinyl chloride (cancer risk = 2.4×10^{-4}; HI=1.5)

In our OU1 FS comments, we indicated that CRA should conduct a vapor intrusion investigation to determine if there is an immediate need to vent on-Site buildings on top of the landfill, or to vent off-Site residences that may be located over the shallow VOC groundwater plume. CRA has not responded to this request, other than to indicate that

CRA will collect additional soil gas samples near GP-20, and conduct a shallow off-Site groundwater investigation as part of OU2.

We believe, however, that this is an extremely urgent matter that cannot wait, since there are current receptors on and adjacent to the Site who may be at risk. Therefore, in our October 5, 2010, letter, we are requesting that CRA provide us with a work plan (and field sampling plan and quality assurance project plan addenda) for a vapor intrusion investigation at all on-Site buildings, and adjacent residences and businesses that may be over the shallow VOC groundwater plume, within 30 days of receipt of this letter. The planning documents should be developed following EPA's data quality objectives process, and relevant vapor intrusion guidance.

This vapor intrusion study should not delay the OU1 FS. Also, we will consider the results of the study, as appropriate, as support for a change in our OU1 proposed plan or ROD, or as a ROD amendment or explanation of significant difference.

Consistent with EPA guidance, we still request that the OU1 FS evaluate at least one active LFG and vapor control system for the Site. There is however, significant flexibility in the technologies that can be used to control LFG and soil vapors to protect current and future receptors at the Site. These may include, but are not limited to, passive venting, active venting, passive venting that can be easily converted to active venting, or a combination of technologies depending on current and potential land use (e.g., active venting in business areas; passive venting in other Site areas).

We don't think you would disagree that some venting of landfill gas is likely to be necessary as part of the remedy. Our request was only that an active gas venting system be considered in the FS. We would envision that an alternative could be considered that included a passive venting system, along with continued monitoring, and the option to switch to an active system if data show the necessity. In any event, to effectively design a cap on any portion of the Site, and to avoid unnecessary intrusion into the cap later, it seems prudent to consider a venting system now as part of the capping alternatives.

The City of Moraine and others have expressed a very strong interest in keeping the SDDL Site available for industrial use. Therefore, it is critical that any remedial action thoroughly protect potential receptors at the Site. However, EPA cannot select a remedy for LFG and soil vapors until all potential alternatives to control LFG and soil vapor, including the no-action alternative, are evaluated in conjunction with EPA's nine evaluation criteria, in the OU1 ROD.

Issue 4: *CRA will not submit the revised OU1 FS to EPA until EPA approves the OU2 RI/FS Work Plan, which will be submitted within 45 days of reaching agreement with*

EPA on the issues in CRA's September 17, 2010 letter, and could be finalized within three to six months.

EPA Response to Issue 4: We will work with CRA as expeditiously as possible on the Work Plan for the OU2 investigation, following the process and guidance for conducting a conventional RI/FS. This will include a quantitative human health risk assessment and baseline ecological risk assessment for all OU2 areas and media, consistent with the 2006 SOW.

We still believe that it is in the best interest of everyone that a cooperative solution is reached on all of these issue. However, in lieu of such an agreement, we respectfully request that, pursuant to the 2006 ASAOC, CRA submit the revised OU1 FS, which was due September 24, 2010, to us at this time. We also believe that completing the vapor intrusion study is of extremely high importance and must be completed expeditiously. Again, we request that a work plan for the vapor intrusion study be submitted within 30 days of receipt of this letter. We believe that proceeding with this schedule is in the best interest of the public, including those living or operating businesses on or near the landfill.

Since OU2 is separate from OU1, we do not agree that the OU1 FS process should be delayed any further, and the due date for the revised OU1 FS remains September 24, 2010.

TABLE 1

SUMMARY OF ANALYTICAL SOIL RESULTS
2008 TEST PIT / TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP AND LANDFILL
MORAINE, OHIO

			Sample Location:	*TP-2*	*TP-3*	*TP-3*	*TP-3*
			Sample ID:	*S-38443-092408-KMV-006*	*S-38443-092408-KMV-008*	*S-38443-092408-KMV-009*	*S-38443-092408-KMV-011*
			Sample Date:	*9/24/2008*	*9/24/2008*	*9/24/2008*	*9/24/2008*
			Sample Depth:	*5 ft BGS*	*8.7 ft BGS*	*10.4 ft BGS*	*16 ft BGS*
		Regional Screening Level					
		MCL DAF=10	*10-4 Risk DAF=10*				
Parameter	*Units*						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/kg	701	32,000	2.1 J			18000 U
1,1-Dichloroethane	µg/kg		687			220 J	18000 U
1,1-Dichloroethene	µg/kg	25.1	1,200				18000 U
Benzene	µg/kg	25.6	211		23 J	21 J	18000 U
cis-1,2-Dichloroethene	µg/kg	206	1,070				18000 U
Tetrachloroethene	µg/kg	22	49.2			**25 J**	18000 U
trans-1,2-Dichloroethene	µg/kg	294	314				18000 U
Trichloroethene	µg/kg	17.9	717				18000 U
Vinyl chloride	µg/kg	6.9	5.58				18000 U
NOTES:							
Red bold values indicate concentration greater than soil levels for groundwater protection at MCL with DAF=10							
Yellow highlighted values indicate concentration greater than soil levels for groundwater protection at 10-4 cancer risk or hazard index >1.0 with DAF=10							

TABLE 1

SUMMARY OF ANALYTICAL SOIL RESULTS
2008 TEST PIT / TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP AND LANDFILL
MORAINE, OHIO

			Sample Location:	*TP-4*	*TP-5*	*TP-5*	*TP-6*
			Sample ID:	*S-38443-092408-KMV-014*	*S-38443-100608-KMV-055*	*S-38443-100608-KMV-056*	*S-38443-100608-KMV-058*
			Sample Date:	*9/24/2008*	*10/6/2008*	*10/6/2008*	*10/6/2008*
			Sample Depth:	*18.6 ft BGS*	*12 ft BGS*	*17 ft BGS*	*20 ft BGS*
		Regional Screening Level					
		MCL DAF=10	*10-4 Risk DAF=10*				
Parameter	***Units***						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/kg	701	32,000				
1,1-Dichloroethane	µg/kg		687	1.0 J			
1,1-Dichloroethene	µg/kg	25.1	1,200				
Benzene	µg/kg	25.6	211		260 J	0.67 J	0.36 J
cis-1,2-Dichloroethene	µg/kg	206	1,070				1.7 J
Tetrachloroethene	µg/kg	22	49.2				
trans-1,2-Dichloroethene	µg/kg	294	314				0.53 J
Trichloroethene	µg/kg	17.9	717		16 J		0.68 J
Vinyl chloride	µg/kg	6.9	5.58				0.58 J
NOTES:							
Red bold values indicate concentration greater than soil levels for groundwater protection at MCL with DAF=10							
Yellow highlighted values indicate concentration greater than soil levels for groundwater protection at 10-4 cancer r							

TABLE 1

SUMMARY OF ANALYTICAL SOIL RESULTS
2008 TEST PIT / TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP AND LANDFILL
MORAINE, OHIO

			Sample Location:	*TT-5*	*TT-5*	*TT-5*
			Sample ID:	*S-38443-093008-KMV-029*	*S-38443-093008-KMV-030*	*S-38443-093008-KMV-031*
			Sample Date:	*9/30/2008*	*9/30/2008*	*9/30/2008*
			Sample Depth:	*3 ft BGS*	*7 ft BGS*	*14 ft BGS*
		Regional Screening Level				
		MCL DAF=10	*10-4 Risk DAF=10*			
Parameter	*Units*					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	701	32,000			
1,1-Dichloroethane	µg/kg		687			
1,1-Dichloroethene	µg/kg	25.1	1,200			
Benzene	µg/kg	25.6	211			
cis-1,2-Dichloroethene	µg/kg	206	1,070			
Tetrachloroethene	µg/kg	22	49.2		4.5 J	20 J
trans-1,2-Dichloroethene	µg/kg	294	314			
Trichloroethene	µg/kg	17.9	717	1.0 J	4.9 J	9.7
Vinyl chloride	µg/kg	6.9	5.58			
NOTES:						
Red bold values indicate concentration greater than soil levels for groundwater protection at MCL with DAF=10						
Yellow highlighted values indicate concentration greater than soil levels for groundwater protection at 10-4 cancer r						

TABLE 1

SUMMARY OF ANALYTICAL SOIL RESULTS
2008 TEST PIT / TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP AND LANDFILL
MORAINE, OHIO

			Sample Location:	*TT-5*	*TT-5*	*TT-7*
			Sample ID:	*S-38443-093008-KMV-031-D*	*S-38443-093008-KMV-032*	*S-38443-100708-KMV-061*
			Sample Date:	*9/30/2008*	*9/30/2008*	*10/7/2008*
			Sample Depth:	*14 ft BGS*	*17 ft BGS*	*6 ft BGS*
		Regional Screening Level				
		MCL DAF=10	*10-4 Risk DAF=10*	*Duplicate*		
Parameter	*Units*					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	701	32,000			1800 U
1,1-Dichloroethane	µg/kg		687			1800 U
1,1-Dichloroethene	µg/kg	25.1	1,200			1800 U
Benzene	µg/kg	25.6	211			1800 U
cis-1,2-Dichloroethene	µg/kg	206	1,070		0.62 J	1800 U
Tetrachloroethene	µg/kg	22	49.2	1.9 J		1800 U
trans-1,2-Dichloroethene	µg/kg	294	314			1800 U
Trichloroethene	µg/kg	17.9	717	3.3 J	1.7 J	1800 U
Vinyl chloride	µg/kg	6.9	5.58			1800 U
NOTES:						
Red bold values indicate concentration greater than soil levels for groundwater protection at MCL with DAF=10						
Yellow highlighted values indicate concentration greater than soil levels for groundwater protection at 10-4 cancer r						

TABLE 1

SUMMARY OF ANALYTICAL SOIL RESULTS
2008 TEST PIT / TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP AND LANDFILL
MORAINE, OHIO

			Sample Location:	TT-7	TT-8	TT-8
			Sample ID:	S-38443-100708-KMV-063	S-38443-100608-KMV-050	S-38443-100608-KMV-050-D
			Sample Date:	10/7/2008	10/6/2008	10/6/2008
			Sample Depth:	16 ft BGS	4 ft BGS	4 ft BGS
		Regional Screening Level				
		MCL DAF=10	10-4 Risk DAF=10			Duplicate
Parameter	*Units*					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	701	32,000			
1,1-Dichloroethane	µg/kg		687		5.0 J	36 J
1,1-Dichloroethene	µg/kg	25.1	1,200		0.89 J	4.6 J
Benzene	µg/kg	25.6	211	**94 J**	1.3 J	2.0 J
cis-1,2-Dichloroethene	µg/kg	206	1,070	20 J	4.5 J	21 J
Tetrachloroethene	µg/kg	22	49.2			
trans-1,2-Dichloroethene	µg/kg	294	314			
Trichloroethene	µg/kg	17.9	717	**240 J**	6.7	5.3 J
Vinyl chloride	µg/kg	6.9	5.58		5.5 J	54 J
NOTES:						
Red bold values indicate concentration greater than soil levels for groundwater protection at MCL with DAF=10						
Yellow highlighted values indicate concentration greater than soil levels for groundwater protection at 10-4 cancer r						

TABLE 1

SUMMARY OF ANALYTICAL SOIL RESULTS
2008 TEST PIT / TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP AND LANDFILL
MORAINE, OHIO

			Sample Location:	*TT-8*	*TT-9*	*TT-9*	*TT-9*
			Sample ID:	*S-38443-100608-KMV-051*	*S-38443-100308-KMV-047*	*S-38443-100308-KMV-048*	*S-38443-100308-KMV-049*
			Sample Date:	*10/6/2008*	*10/3/2008*	*10/3/2008*	*10/3/2008*
			Sample Depth:	*15 ft BGS*	*7 ft BGS*	*17 ft BGS*	*22 ft BGS*
		Regional Screening Level					
		MCL DAF=10	*10-4 Risk DAF=10*				
Parameter	***Units***						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/kg	701	32,000				
1,1-Dichloroethane	µg/kg		687	1.1 J	240 J	46 J	
1,1-Dichloroethene	µg/kg	25.1	1,200				
Benzene	µg/kg	25.6	211		**150 J**	**130 J**	
cis-1,2-Dichloroethene	µg/kg	206	1,070	0.63 J	**890**	**590 J**	**330 J**
Tetrachloroethene	µg/kg	22	49.2				
trans-1,2-Dichloroethene	µg/kg	294	314				
Trichloroethene	µg/kg	17.9	717		**350 J**	**670 J**	**420 J**
Vinyl chloride	µg/kg	6.9	5.58		220 J	180 J	
NOTES:							
Red bold values indicate concentration greater than soil levels for groundwater protection at MCL with DAF=10							
Yellow highlighted values indicate concentration greater than soil levels for groundwater protection at 10-4 cancer r							

TABLE 1

SUMMARY OF ANALYTICAL SOIL RESULTS
2008 TEST PIT / TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP AND LANDFILL
MORAINE, OHIO

			Sample Location:	*TT-10*	*TT-10*	*TT-11*	*TT-12*
			Sample ID:	*S-38443-100308-KMV-045*	*S-38443-100308-KMV-046*	*S-38443-100208-KMV-043*	*S-38443-100208-KMV-040*
			Sample Date:	*10/3/2008*	*10/3/2008*	*10/2/2008*	*10/2/2008*
			Sample Depth:	*10 ft BGS*	*15 ft BGS*	*21 ft BGS*	*21 ft BGS*
		Regional Screening Level					
		MCL DAF=10	*10-4 Risk DAF=10*				
Parameter	*Units*						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/kg	701	32,000				
1,1-Dichloroethane	µg/kg		687				
1,1-Dichloroethene	µg/kg	25.1	1,200				
Benzene	µg/kg	25.6	211				
cis-1,2-Dichloroethene	µg/kg	206	1,070				0.30 J
Tetrachloroethene	µg/kg	22	49.2	4.8 J	4.7 J		
trans-1,2-Dichloroethene	µg/kg	294	314				
Trichloroethene	µg/kg	17.9	717			10	1.1 J
Vinyl chloride	µg/kg	6.9	5.58				
NOTES:							
Red bold values indicate concentration greater than soil levels for groundwater protection at MCL with DAF=10							
Yellow highlighted values indicate concentration greater than soil levels for groundwater protection at 10-4 cancer r							

TABLE 1

SUMMARY OF ANALYTICAL SOIL RESULTS
2008 TEST PIT / TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP AND LANDFILL
MORAINE, OHIO

			Sample Location:	TT-18	TT-19	TT-20
			Sample ID:	S-38443-100108-KMV-036	S-38443-100708-KMV-059	S-38443-100708-KMV-065-D
			Sample Date:	10/1/2008	10/7/2008	10/7/2008
			Sample Depth:	5 ft BGS	7 ft BGS	7 ft BGS
		Regional Screening Level				
		MCL DAF=10	10-4 Risk DAF=10			
Parameter	*Units*					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/kg	701	32,000	R	2.7 J	
1,1-Dichloroethane	µg/kg		687	R		
1,1-Dichloroethene	µg/kg	25.1	1,200	R		
Benzene	µg/kg	25.6	211	R	1.0 J	
cis-1,2-Dichloroethene	µg/kg	206	1,070	R		
Tetrachloroethene	µg/kg	22	49.2	R	1.6 J	2500 J
trans-1,2-Dichloroethene	µg/kg	294	314	R		
Trichloroethene	µg/kg	17.9	717	R	**29**	**60 J**
Vinyl chloride	µg/kg	6.9	5.58	R		
NOTES:						
Red bold values indicate concentration greater than soil levels for groundwater protection at MCL with DAF=10						
Yellow highlighted values indicate concentration greater than soil levels for groundwater protection at 10-4 cancer r						

TABLE 1

SUMMARY OF ANALYTICAL SOIL RESULTS
2008 TEST PIT / TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP AND LANDFILL
MORAINE, OHIO

				Sample Location:	*TT-20*	*TT-21*	*TT-21*	*TT-21*
				Sample ID:	*S-38443-100708-KMV-064*	*S-38443-100808-KMV-070*	*S-38443-100808-KMV-068*	*S-38443-100808-KMV-069*
				Sample Date:	*10/7/2008*	*10/8/2008*	*10/8/2008*	*10/8/2008*
				Sample Depth:	*15 ft BGS*	*7 ft BGS*	*8 ft BGS*	*21 ft BGS*
		Regional Screening Level						
		MCL DAF=10	*10-4 Risk DAF=10*					
Parameter	***Units***							
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/kg	701	32,000			11000 U		
1,1-Dichloroethane	µg/kg		687			11000 U		
1,1-Dichloroethene	µg/kg	25.1	1,200			11000 U		
Benzene	µg/kg	25.6	211			12000	**210 J**	360 J
cis-1,2-Dichloroethene	µg/kg	206	1,070			11000 U	**690**	1400
Tetrachloroethene	µg/kg	22	49.2		57	11000 U		
trans-1,2-Dichloroethene	µg/kg	294	314			11000 U	56 J	130 J
Trichloroethene	µg/kg	17.9	717			11000 U	**400**	790 J
Vinyl chloride	µg/kg	6.9	5.58			11000 U	130 J	490 J
NOTES:								
Red bold values indicate concentration greater than soil levels for groundwater protection at MCL with DAF=10								
Yellow highlighted values indicate concentration greater than soil levels for groundwater protection at 10-4 cancer r								

TABLE 1

SUMMARY OF ANALYTICAL SOIL RESULTS
2008 TEST PIT / TEST TRENCH INVESTIGATION
SOUTH DAYTON DUMP AND LANDFILL
MORAINE, OHIO

			Sample Location:	TT-22	TT-22	TT-23	TT-23
			Sample ID:	S-38443-100808-KMV-066	S-38443-100808-KMV-067	S-38443-100608-KMV-052	S-38443-100608-KMV-053
			Sample Date:	10/8/2008	10/8/2008	10/6/2008	10/6/2008
			Sample Depth:	6 ft BGS	21 ft BGS	7 ft BGS	18 ft BGS
		Regional Screening Level					
		MCL DAF=10	*10-4 Risk DAF=10*				
Parameter	*Units*						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/kg	701	32,000				
1,1-Dichloroethane	µg/kg		687		66 J		
1,1-Dichloroethene	µg/kg	25.1	1,200				
Benzene	µg/kg	25.6	211	530 J	290 J		
cis-1,2-Dichloroethene	µg/kg	206	1,070	150 J		16	
Tetrachloroethene	µg/kg	22	49.2				
trans-1,2-Dichloroethene	µg/kg	294	314				
Trichloroethene	µg/kg	17.9	717			**31**	0.62 J
Vinyl chloride	µg/kg	6.9	5.58		61 J		
NOTES:							
Red bold values indicate concentration greater than soil levels for groundwater protection at MCL with DAF=10							
Yellow highlighted values indicate concentration greater than soil levels for groundwater protection at 10-4 cancer r							